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**A LISTER ATTACHMENT FOR A COTTON
PLANTER.**

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NEED OF A LISTER ATTACHMENT.

A problem that confronts all cotton growers is how to obtain a good stand, since this is a most important factor in determining how large the yield will be. The difficulty of getting a good stand is greatest in the more arid portion of the cotton belt, where at cotton-planting time the soil is frequently dry, at least in spots, to a depth of several inches. If, under these conditions, the seed is planted at the usual depth, it fails to germinate, while if it is planted deep enough to be everywhere in moist soil the young plants are unable to push their way through the dry layer above. The difficulty is often only aggravated by a rainfall soon after planting, as this causes a crust to form on the surface of the soil through which the tender seedlings are unable to break.

Where cotton is grown under irrigation, the soil is frequently allowed to become too dry before the seed is put in, and there is always danger that rain will cause a crust to form over the surface. For this reason any suggestions as to how to get a good stand should be of interest to cotton growers in the Salt River Valley.

As is known by all cotton growers, the young cotton plant is very tender, and the seed leaves can not push their way up through a soil that is compacted, especially if the seed is planted deep. The seed should not be covered with more than 1½ to 2 inches of soil, but in dry regions it is the exception rather than the rule for the surface soil to remain moist at that depth long enough to allow the seed to germinate. If a good stand is to be secured, planting must be done immediately after a rain or as soon as possible after the land has been irrigated, unless some sort of an attachment is used on the planter to push away the dry surface soil.

DESCRIPTION OF THE DEVICE.

The writer was for several years stationed at San Antonio, Tex., which is located in the edge of the semiarid belt. The soil at the San Antonio Field Station is of an extremely heavy type which tends to run together and bake after a rain. For some time a 1-horse planter was used in planting cotton, but this was later replaced by a double-row, split-wheel combined cotton and corn planter of the type frequently seen in the cotton belt, which worked much more satisfactorily. Nevertheless, poor stands were sometimes obtained, either because the seed was planted too deep in order to get it down to the

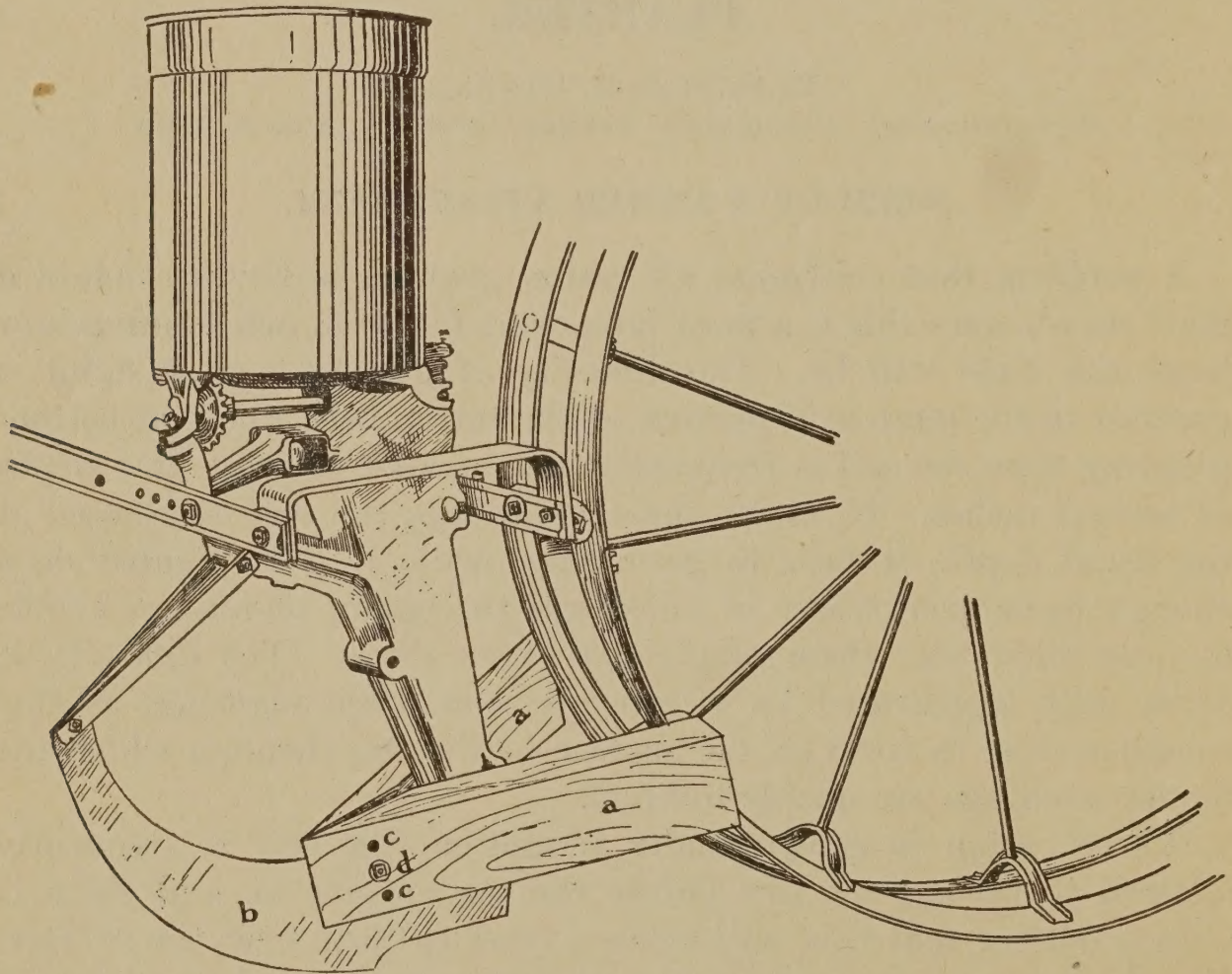


FIG. 1.—A planter attachment used to push away the dry surface soil. *a, a*, The 2 by 4 wings; *d*, bolt used to fasten the wings to the shoe. Additional holes, *c, c*, can be put in the wings, so that they may be lowered or raised as desired, and the depth of covering the seed may be regulated in this way.

moist soil, or because if the seed was planted at a less depth most of it was in dry soil, so that a poor germination resulted. Later, an attachment which was in the nature of modified sweeps was put on this planter. This gave such uniformly good results that it seems worthy of description, with the hope that it will be of value to the cotton growers of the Salt River Valley.

This device is very simple and can be put on by the average farmer, as the only machine work that is necessary is to have a hole drilled through each shoe about half an inch from the top and about

7 inches from the rear of the shoe. Two pieces of 2 by 4 inch lumber, 17 inches long, with one side beveled so that when the two are placed one on either side of the shoe they will just clear the wheel, complete the attachment. (Fig. 1.)

A similar attachment in a somewhat modified form is being used by Mr. R. E. Blair, of the Yuma (Ariz.) Field Station. Instead of wings like those described in figure 1, 2 by 6's are bolted on the shoe more nearly parallel with it and shorter, ending in front of the planter wheel. In this case the front of the sweep is attached by a bolt lower down on the shoe and a second bolt is placed through the rear of the wings, allowing a firm grip on the planter shoe without much tension on the front bolt. This arrangement affords a quick and efficient means of regulating the depth of path that is cleared for the planter shoe without changing the front bolt.

ADVANTAGES OBTAINED BY USING THE ATTACHMENT.

Some of the advantages of this attachment are as follows:

(1) The chances of securing a good stand of cotton are much greater, owing to the uniform depth of covering the seed.

(2) Less care is required in planting, as the planter does not need to be watched so closely to prevent covering the seed too deep.

(3) It is not necessary that the planter follow so closely after the harrow, for even if the surface soil has dried out somewhat, the seed can still be put in the moist soil without danger of being covered too deep.

(4) It has been found that in the case of the heavier types of soil a good stand can generally be obtained after the soil has been compacted by a hard rain, which is not so when no attachment is used.

(5) No matter how a planter is set, spots will be found where the soil is harrowed to a greater depth than others, and the seed necessarily will be covered to a greater depth. With this attachment an absolutely uniform depth of planting will be guaranteed, regardless of how the condition of the surface soil may vary.

(6) A smaller quantity of seed can be used, and if the soil has been well prepared there is no reason why every farmer should not have a good stand of cotton unless the conditions after planting are very exceptional.

(7) Another advantage of the attachment is that in planting the seed in a slight furrow the soil around the seed in this furrow will not dry out as quickly as on the surrounding surface soil, and this also favors germination.

Approved:

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Acting Chief of Bureau.

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